

EPIDEMIOLOGIC INVESTIGATION SUMMARY

CLOSTRIDIUM DIFFICILE: GASTROINTESTINAL ILLNESS OUTBREAK AMONG PATIENTS AND STAFF OF A HOSPITAL WASHOE COUNTY, NEVADA, 2014

Department of Health and Human Services
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PURPOSE

The purpose of this newsletter is to provide the scientific community, decision makers, healthcare providers, and the public a summary of the outbreak investigations conducted by the Division of Public and Behavioral Health.

BACKGROUND

On Thursday, October 2, 2014, the Division of Public and Behavioral Health (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) was informed by the Washoe County Health District (WCHD) of a gastrointestinal (GI) illness among patients of Facility "A". The problem was first identified by staff of the facility on Wednesday, September 10, 2014. Initial symptomology of the ill residents included diarrhea, nausea, fever, and abdominal pain. The outbreak investigation began on Thursday, October 2, 2014.

METHODS

Epidemiology

On Thursday, October 2, 2014, DPBH provided recommendations to reduce and prevent the spread of illness in Facility "A," including the submission of outbreak case report forms to OPHIE until further notice, exclusion of symptomatic employees from the facility until 72 hours after symptoms resolved, and laboratory testing to identify the pathological agent(s). Based on the case report forms received from Facility "A," and while still awaiting laboratory confirmation, the outbreak investigation team made an initial determination that the causative agent could possibly be *Clostridium difficile* (aka: *C. Diff.*). This initial determination was based off of prior experience with this pathogen, as well as the CDC's description of the symptomology for *C. Diff.*¹

A **confirmed case** was defined as a resident, staff member, or visitor of Facility "A" who was lab confirmed with *C. diff.* since Wednesday, September 10, 2014.

A **probable case** was defined as a resident, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.*

but had diarrhea (along with possible other GI illnesses) since Wednesday, September 10, 2014.

A **suspect case** was defined as a resident, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.* but anecdotally had diarrhea and (along with possible other GI illnesses) since Wednesday, September 10, 2014.

Laboratory

Laboratory testing for GI illness was highly recommended for ill residents in order to identify the etiologic agent, target infection prevention measures and control the outbreak within Facility "A." Laboratory testing was focused on the presence of *C. diff.*

Ten laboratory specimens were collected and tested during this outbreak.

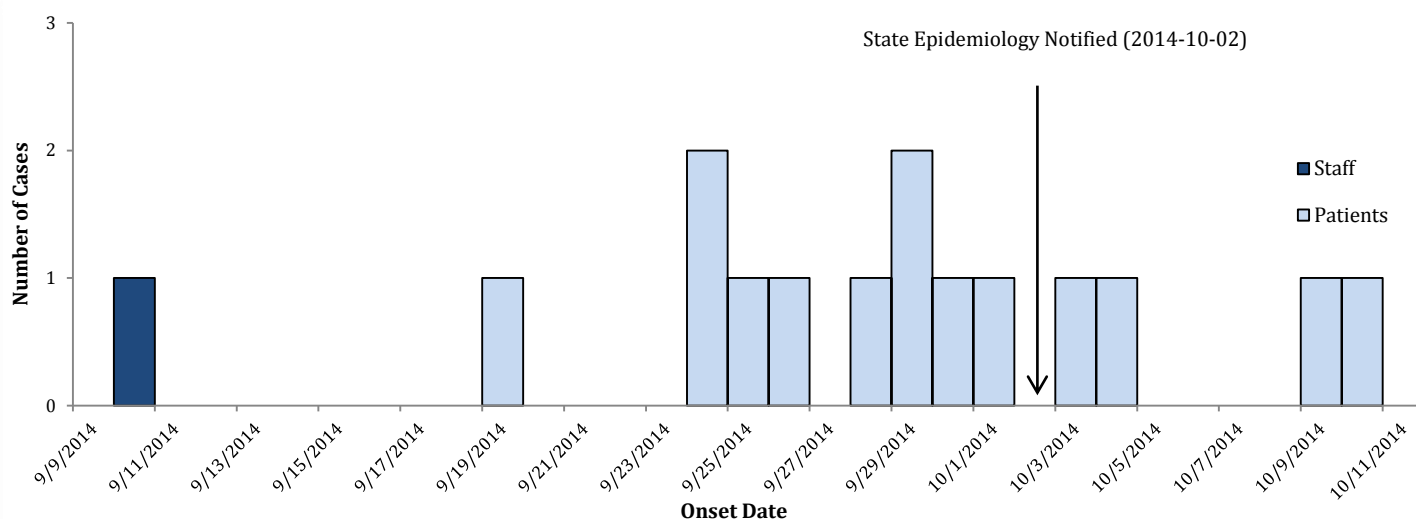


Figure 1. The epidemic curve of *C. diff.* (n=15) associated with a hospital in Washoe County, Nevada, from September 10 – October 10, 2014

Mitigation

In order to prevent further spread of illness, the OPHIE Outbreak Response Team disseminated recommendations as per the CDC for the prevention and control of *C. diff.* outbreaks to Facility “A” (see references).

To further prevent the spread of illness, Facility “A” conducted its own prevention measures including: the use of PDI bleach wipes (sporicidal), re-training staff concerning the proper disinfection protocols, the use of sticker labels on alcohol sanitizers indicating “Not for *C. diff.*”, patient care staff used soap and water to clean hands instead of alcohol based sanitizers, and patient visitation was restricted for those in isolation.

The facility completed a root cause analysis (RCA) to find the cause of the outbreak and tailor mitigation efforts around that cause.

RESULTS

Epidemiology

A total of 15 cases (nine confirmed and six probable) were reported. The epidemic curve is presented in Figure 1 and shows the distribution of illness onset dates.

The peak illness onset dates were September 24 and 29, 2014. Among the cases, the average age was 55 years old (range 19-86 years) and males comprised 66.7% of cases.

Symptomatic cases reported diarrhea (100%), abdominal pain (33%), nausea (13.3%), fever (13.3%), and malaise (6.7%).

The average duration of illness was approximately five days (range two – nine days) and there were 12 hospitalizations (all patients). There were three deaths during this outbreak; one was linked to the *C. diff.* infection. The patient attack rate was 8.6%.

Laboratory

Ten laboratory samples tested positive for *C. diff.*

Mitigation

After lab results confirmed that the cause of the outbreak was determined to be *C. diff.* which has an incubation period of two-three days² the DPBH reiterated to the facility the same information given at the start of the outbreak for preventing and controlling *C. diff.* outbreaks.

After conducting the RCA, a case of *C. diff.* was identified and diagnosed in a patient located in a room adjacent to a known community-onset *C. diff.* toxin positive individual. After this discovery, transmission-based isolation precautions and other risk reduction strategies were put in place.

CONCLUSIONS

A GI illness outbreak occurred among patients at Facility “A”, a hospital in Washoe County, Nevada, from Wednesday, September 10 through Saturday, October 4, 2014.

Confirmatory test results indicated *C. diff.* was the causative agent and the mode of transmission was believed to be nosocomial.

In total, 15 individuals were classified as cases (one staff member and 14 patients). Symptoms included diarrhea, abdominal pain, nausea, fever, and malaise with illness duration lasting an average of five days. Residents attack rate was 8.6% and 12 patients were hospitalized. There were also 3 deaths during this outbreak; one was linked to the *C. diff. infection*. The epidemiologic link between cases was believed to be the facility in which the patients were seeking treatment.

The outbreak was declared over by Sunday, October 5, 2014 because the facility went two full incubation periods without a new case.

RECOMMENDATIONS

To prevent *C. diff* outbreaks in healthcare settings, the following public health measures are recommended:

- Use contact precautions for the duration of patient diarrhea.
- Abide by proper use of gloves
- Follow proper hand hygiene that is in compliance with CDC/WHO guidelines
- Clean and disinfect equipment and environment; the use of a bleach solution is most effective
- Educate health care worker, housekeepers, administration staff, patients, and families on *C. diff*
- Isolate patients with symptoms until a *C. diff* confirmation is made
- Immediately notify infection control about positive *C. diff* laboratory results³

REFERENCES

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